



MANAGEMENT OF CHANGE FORM
(REFER TO PROCEDURE EHS-I-006 FOR EXPLANATION OF THIS FORM)

DEPARTMENT: Utilities MOC#: 183637
ORIGINATOR: Joe Vittone DATE: 09/19/2016

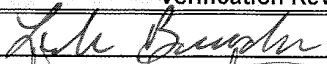
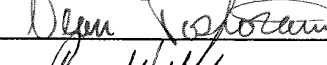

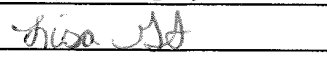

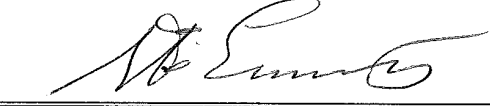


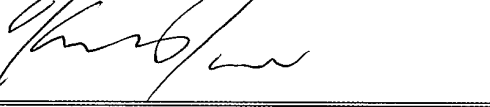

| SECTION A - TECHNICAL BASIS FOR PROPOSED CHANGE | | | |
|---|--|---|--------------------------------|
| Purpose and Technical Basis: | During the PSM audit in January of 2016, a finding was documented that the buried natural gas lines (2) do not have a cathodic protection system to protect the lines from soil corrosion. | | |
| Description: <i>Attach additional paper if necessary</i> | This project will install a cathodic protection system on two buried natural gas lines. These lines are from the Ameren station on the north side of the street to the boiler room north wall. All excavations will be done using a hydro-vac method. The attached drawing shows the locations of test stations and anode placement. | | |
| Impact of Change On Env / Health / Safety: <i>If there will be no effects, describe the thought process used to determine this.</i> | The addition of the cathodic protection system will monitor the integrity of the buried gas lines. | | |
| SECTION B - DOCUMENTATION - Attach appropriate documentation illustrating proposed changes | | | |
| <input type="checkbox"/> Procedures | <input type="checkbox"/> Inspections, Testing, PM's | <input type="checkbox"/> AEC | <input type="checkbox"/> PHA'S |
| <input type="checkbox"/> PSM Documentation | <input type="checkbox"/> CHEMGEMS Specifications | <input type="checkbox"/> MI App Checklist | <input type="checkbox"/> LDAR |
| <input type="checkbox"/> MSDS Information | <input type="checkbox"/> Energy Control Plans | <input type="checkbox"/> DCS logic printout | <input type="checkbox"/> OJT's |
| <input type="checkbox"/> Training/Communication | <input type="checkbox"/> Alarm Response Tables | <input type="checkbox"/> DCS screen shots | <input type="checkbox"/> JSA's |
| <input type="checkbox"/> Quality Issues | <input type="checkbox"/> Customer Impact | <input type="checkbox"/> Other | |
| Affected Personnel Needing To Be Informed/Trained On Proposed Change | | | |
| <input type="checkbox"/> Operations | <input type="checkbox"/> I/E Technicians | <input type="checkbox"/> Community | |
| <input type="checkbox"/> Production Facilitators | <input type="checkbox"/> Engineering | <input type="checkbox"/> Regulatory Entities | |
| <input type="checkbox"/> Mechanics/Welders | <input type="checkbox"/> Contractor(s) | <input type="checkbox"/> Corporate | |
| <input checked="" type="checkbox"/> Electricians | <input type="checkbox"/> Office Personnel | <input type="checkbox"/> Other | |
| SECTION C - Is Change Permanent? | | SECTION D - Is Change Temporary ? | |
| <input checked="" type="checkbox"/> YES Proposed Project Start Date 10/03/2016 | <input type="checkbox"/> YES From: | <input type="checkbox"/> YES From: | |
| <input type="checkbox"/> NO Proposed Project Completion Date 02/28/2017 | <input checked="" type="checkbox"/> NO To: | <input checked="" type="checkbox"/> NO To: | |
| SECTION E - Is Change Emergency ? | | Returned To Original Service: ____/____/____ | |
| <input type="checkbox"/> Yes Start: | <input checked="" type="checkbox"/> NO | Area Mgr./Designee Signature: _____ | |
| Approval Received From: | | Extended To: ____/____/____* | |
| <input type="checkbox"/> Ops. Mgr./Designee | <input type="checkbox"/> Env. Eng./Designee | Plant Managers Approval: Signature: _____ Date: _____ *Note: Temporary MOC's may be extended up to 6 months at a time | |
| <input type="checkbox"/> Plant Mgr./Designee (if requested) | <input type="checkbox"/> Technical Services Mgr./Designee | | |
| <input type="checkbox"/> H&S Mgr./Specialist | <input type="checkbox"/> Area Mgr./Designee | | |
| Approvals Received By: _____ Signature Date | | | |

| SECTION F - DESIGN SAFETY REVIEW | | |
|--|---|--|
| PHA. Does the proposed change require a PHA? (i.e. What-iff/Checklist, HazOp, Revalidation, Review) If yes indicate type of PHA in Action to be Taken section. | <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO |
| PSSR. Does the proposed change require a Pre-Start-up Safety Review (PSSR)? See EHS-I-067 for Requirements. Mandatory if change involves DCS Interface. | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO |
| 1. RELIEF AND BLOWDOWN | | |
| Does the Proposed Change: | YES | NO |
| 1. Introduce or alter any potential cause of over/under pressurizing of the system? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. In any way affect existing equipment installed to prevent over/under pressurization? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Introduce or alter any potential cause of raising/lowering the system temperature? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. Introduce a risk of creating/reducing vacuum in the system? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Have any critical relief devices been identified for verification of proper rating and installation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. AREA CLASSIFICATION | | |
| Does the Proposed Change: | YES | NO |
| 1. Introduce or alter the storage of flammable materials? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Introduce or alter the location of potential leaks of flammable materials? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Introduce new or alter existing electrical equipment? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. Does the new or altered electrical equipment need to be suitable for electrically classified areas? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Require the installation of new or modified combustible liquid material handling systems? (Grounding action item required) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 6. Require the installation of new or modified dust material handling systems? (Grounding action item required) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 7. Affect area ventilation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| A yes answer to any question in this section requires a review by the Electrical Engineer prior to routing for approval signatures. | | |
| 3. SAFETY CONSIDERATIONS | | |
| Does the Proposed Change: | YES | NO |
| 1. Require any additional safety equipment or layers of protection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Alter or affect existing safety equipment or means of egress? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Require changes to the function or independence of existing equipment or layers of protection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. Alter or affect critical safety instrumented functions (SIF's)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Alter the noise level in the surrounding area? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 6. Increase the potential for exposure to any chemicals? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 7. Introduce a new or previously unused chemical/raw material? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 8. Affect de-energization? (able to lock-out, drain materials) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 9. Create any ergonomic concerns? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10. Affect any Battery Limit Valves (BLV)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11. Affect the overall security of the facility? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12. Does this increase the risk of potential impact to plant personnel (employees and contractors)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13. Does the proposed change affect facility siting relative to both people and equipment in any of the following situations: temporary changes, before startup after a permanent change, or before startup after temporary change has been removed/closed/returned to original condition? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 14. If the proposed change affects replacement or demolition of piping or conduit, will the entire run be identified and clearly marked prior to work, to ensure safe work activity? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 15. Affect the safe transport of hazardous material? For ex., introducing a new hazardous material for transport or changing the method of transportation of the hazardous material. | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

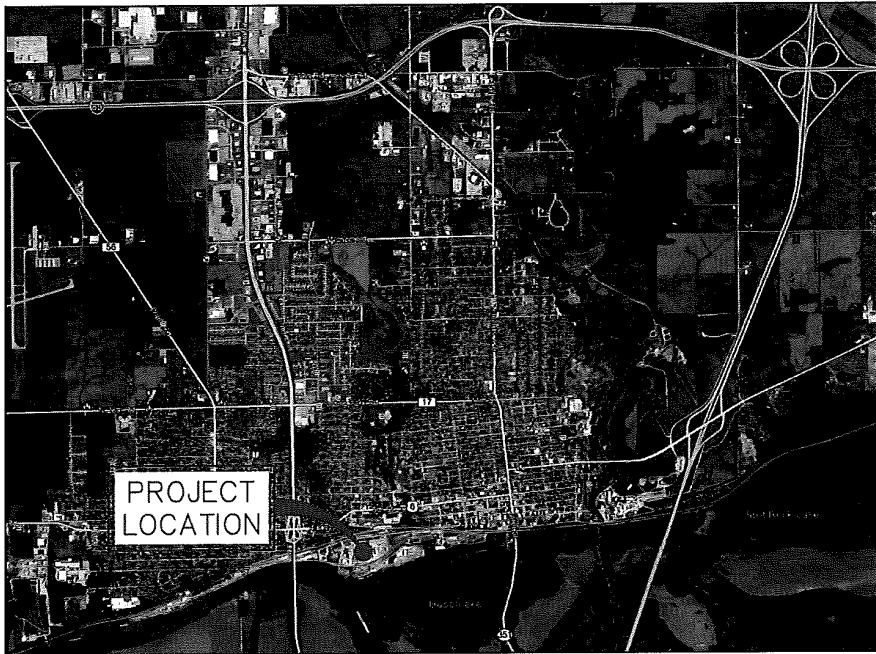
| SECTION F - DESIGN SAFETY REVIEW | | |
|--|--------------------------|-------------------------------------|
| 4. ENVIRONMENTAL CONSIDERATIONS <small>(Consult Env. Engineer for completion of this section)</small> | | |
| | YES | NO |
| 1. Will there be a potential increase in the maximum production rate, which exceeds the currently permitted design capacity of the facility? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Will the replacement or modification change any of the basic parameters of the process unit, such as temperature, pressure, etc? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Will the change cause increased emissions of regulated pollutants during installation, implementation, or during operations? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. Will there be any new vents added? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Will the change add, remove or modify any permitted emission units <i>(Example: reactors, wash tanks, dryers, centrifuges, pack-out bins, screening towers, or styrene or pentane storage.)</i> ? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 6. Will the project include the installation of a stationary engine with a ≤ 500 hp? If so, a non-resettable hour meter shall be installed to record operational hours and PMs shall be consistent with RICE NESHAP regulations and the manufacturer's recommended preventative maintenance. | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 7. Will the project results in the increase in Facility's total throughput of natural gas? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 8. Is there the potential to generate a new waste or increase the quantity of an existing waste? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 9. Will there be a change in the wastewater characteristics? If the project causes an increase to the discharge of wastewater to the Public Sanitary District, provide calculations with the MOC. | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10. Does the project add or remove LDAR Components (Pumps, PRVs, Valves, and Connectors) that come in contact with styrene or pentane? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11. Does the project increase risk to off-site residential & environmental receptors? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12. Will the change affect the control of processes? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13. Will the change affect the composition or physical properties of the final product? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 14. Will new chemicals be brought onsite anytime during the project? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 15. Does an evaluation of chemical compatibility need to be conducted during the project? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 16. Will the project involve decommissioning or demolition of equipment or structure? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 17. If yes to 16, does National Emissions Standards for Hazardous Air Pollutants (NESHAP) or deconstruction permit apply? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 18. Will this project require a portable engine? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. OPERATION AND DESIGN | | |
| Does the Proposed Change: | YES | NO |
| 1. Affect the process or equipment upstream/downstream of the change? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Affect access to process or equipment/controls for personnel? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Introduce any new or affect existing interlocks or alarms systems? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. Affect manpower or qualified personnel? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Affect the loads/strengths of existing foundations, structures, vessels, or pipe racks? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 6. Impact requirements of existing or proposed piping supports? <i>(Needs to be adequately designed for expected stresses due to pressure and thermal loadings.)</i> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 7. Affect process chemistry? (reactivity/compatibility) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 8. Affect maximum intended inventory, which would require updating maximum inventory tables? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 9. Affect safe upper/lower limits for such items as temperature, process flows or compositions? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10. Affect material/energy balances? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11. Affect plant utility resources? (i.e. steam, water, electricity, etc.) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12. Affect equipment with heat-up/cool-down cycling requiring bolt retightening after start-up? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13. Is an exception/revision to design codes or standards (CHEM-GEMS, etc.) required? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 6. DCS / SIS / PLC LOGIC & PROGRAMMING | | |
| Does the Proposed Change: | YES | NO |
| 1. Alter the DCS/ SIS/ PLC Software logic of process operations? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Alter the DCS response (alarm settings) for temperature, pressure, or timing? (Describe in Section A) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Alter the DCS screen interface with the DCS operator? (Attach screen shots showing old and new view) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
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| SECTION G - AFFECTS ON PROCEDURES, TRAINING, AND DOCUMENTATION | | |
|--|-------------------------------------|-------------------------------------|
| Will the Proposed Change: | YES | NO |
| 1. Introduce new or impact existing operational procedures? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Introduce new or impact existing maintenance procedures? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Add or Remove equipment/instrumentation? If yes, contact the Design/Drafting Technician. (Pre-PSSR) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. If equipment/instrumentation is being added/removed, ITPM Request Form MIP-F-100 shall be completed by the MOC Originator, and approved form sent to the Maintenance Support Technician. (Post-PSSR) | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 5. Require training for operational or maintenance personnel? (contact Training and Procedure Coordinator) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 6. Require notification for operational or maintenance personnel? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 7. Require updating controlled drawings? * (PFD'S, LDAR, P&ID's, Floor Plans, Electrical Single Lines, Loop Drawings/Electrical Schematics, MCC arrangement, MI Iso Drawings) Attach relevant, red-lined drawings. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 8. Require updating equipment files? (If yes, include completed PSI equipment spec sheet) | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 9. Require a spare parts list and inventory to be developed? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10. Require major project spare equipment to be turned over to maintenance? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11. Require equipment labeling in the field? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 12. Require updating of Alarm Response Tables or Operating Limits? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13. Require a new/modification of existing energy control plans? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 14. Require a new/modification of existing blinding lists? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 15. Require a new/modification of existing Confined Space entry checklists? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 16. Cause any PSM/RMP applicability issues? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 17. Cause a change in PSM/RMP program level? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 18. Will this change have any effect on the overall plant facility siting issues? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 19. Increase or decrease the impact contour for worst-case scenario by a factor of two or more? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 20. Will this MOC supersede /interfere with any other Temporary/Emergency/Permanent MOC's? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 21. Is there a need to update the EPS-I-004, Chemical Compatibility Matrix? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 22. Is a Layer of Protection Analysis (LOPA) study required? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 23. Will this affect the Interlock Matrix? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 24. Require updating of electrical energy consumption spreadsheet? Update required for any MCC, CB panel or bus bar connection additions or alterations. | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 25. Will this change impact Proprietary Technology including product, process, equipment, technical data, or other trade secret information licensed to FHR by third parties If yes, contact the Proprietary Technology Coordinator. | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| * NOTE: Refer to Engineering Equipment Location Database for a list of affected documents, sorted by Location Number. | | |

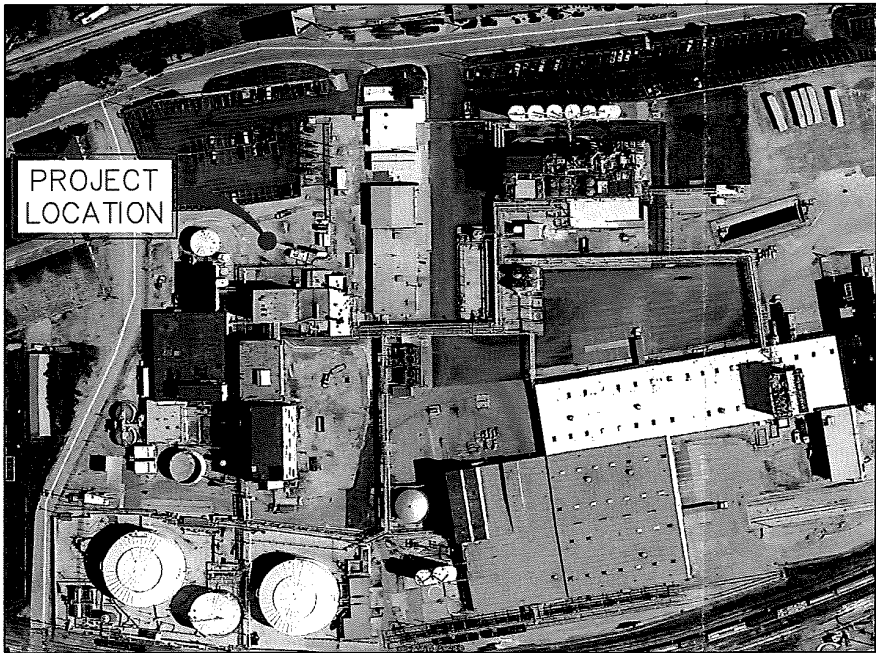
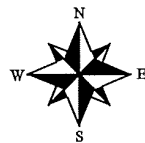
| Any questions with a 'YES' answer, requires follow-up activity. List the action(s) to be taken to resolve any issues identified in 'Section F' and 'Section G' | | | | |
|---|---|-------------------|------------------------|-------------------|
| Item No. | Action To Be Completed <u>Prior to PSSR</u> | Responsible Party | Target Completion Date | Approving Manager |
| G-6 | Notify ETM's of Change | Williams | 02/28/2017 | Vittone |
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| F-PSSR | Conduct Pre Start-up Safety Review | Vittone | 02/28/2017 | Vittone |

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|--|--|----------------|
| MOC APPROVAL FORM | | |
| Originator: | | MOC No. 183637 |
| MOC Packet Completeness Verification Review | | |
| Title/Position | Verification Review Signatures | Date |
| Drafting Tech, or Designee |  | 9-27-16 |
| MI Coordinator, or Designee |  | 9-27-16 |
| Maintenance Tech from appropriate area |  | 9-27-16 |
| Operator from affected area |  | 9/27/16 |
| Training & Procedures Coordinator |  | 9-27-16 |
| Electrical Engineer (Section F.2) | | |
| Signatures required Prior To Implementation of MOC. | | |
| Title/Position | Authorizing Signatures | Date |
| Area Manager/Facilitator or Designee |  | 9-28-16 |
| Technical Services Manager or Designee |  | 9-28-16 |
| H&S Specialist or Designee |  | 9-28-16 |
| Operations / Pilot Plant / QC Manager or Designee |  | 9-29-16 |
| Environment Engineer or Designee |  | 9-29-16 |
| Other Reviewers (as requested by any of the Authorizing signers) | | |
| Title/Position | Review Signature | Date |
| Plant Manager or Designee | | |
| VERIFICATION OF MOC CLOSURE | | |
| By signing below: The Originator of this MOC confirms that all action items have been completed & that equipment/documentation in this change is set to start up. | | |
| MOC closure requires the Originators Signature | | |
| MOC Originator: | | |

CATHODIC PROTECTION SYSTEM
FLINT HILLS RESOURCES CHEMICAL INTERMEDIATES, LLC
501 BRUNNER STREET
PERU, IL 61354
N 41.326421°, W -89.113036°



LOCATION MAP



SITE PLAN

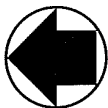
| SHEET | DESCRIPTION |
|-------|--|
| 1 | TITLE SHEET |
| 2 | CP SITE PLAN |
| 3 | TEST STATION AND CONNECTION DETAILS |
| 4 | EXOTHERMIC WELD, WIRING SCHEMATICS DETAILS |

| | | | | | | | |
|-----|------|----|----------|--|---|---|----------------------|
| | | | | REFERENCE DRAWINGS | CLIENT: FLINT HILLS RESOURCES CHEMICAL INTERMEDIATES, LLC 501 BRUNNER STREET PERU, IL 61354 | CONTENTS: CATHODIC PROTECTION SYSTEM PROJECT TITLE & SITE LOCATION | DESIGNED BY SWC |
| | | | | | | | CHECKED BY SWC |
| | | | | | | | DRAWN BY LWH |
| | | | | | | | DATE 9-20-16 |
| | | | | | | | SCALE NONE |
| | | | | | | | SHEET 1 OF 4 |
| No. | DATE | BY | REVISION | THIS DOCUMENT AND ITS CONTENTS ARE THE PROPERTY OF CORRPRO COMPANIES, INC. ("CORRPRO"). INTENDED ONLY FOR THE USE OF RECIPIENT (THE "RECIPIENT"). RECIPIENT AGREES NOT TO COPY OR REPRODUCE IT, OR USE IT FOR ANY UNAPPROVED PURPOSE, WITHOUT CORRPRO'S PRIOR WRITTEN CONSENT. RECIPIENT SHALL RETURN THIS DOCUMENT UPON CORRPRO'S REQUEST OR UPON COMPLETION OF THE WORK DESCRIBED HEREIN. THIS DESIGN IS NOT APPLICABLE FOR USE AS STANDARD CORROSION CONTROL DUE TO VARIABLE CONDITIONS AT OTHER SITES. | OWNER: FLINT HILLS RESOURCES CHEMICAL INTERMEDIATES, LLC 501 BRUNNER STREET PERU, IL 61354 | LOCATION: FLINT HILLS RESOURCES CHEMICAL INTERMEDIATES, LLC 501 BRUNNER STREET PERU, IL 61354 | DWG. No. B601220 |
| | | | | | | | JOB No. 340601220 |

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CLEVELAND • ATLANTA • CHICAGO
HOUSTON • NEW ORLEANS • OKLAHOMA CITY
PHILADELPHIA • SAN FRANCISCO



NORTH

2 - MAGNESIUM
ANODES ON 5'
SPACING

METER
AREA

BRUNNER STREET

GRASS

CONCRETE

PARKING AREA

ASPHALT

BUILDING
Guard House
Locker Rooms

BUILDING
B4 Pad

BUILDING
Maint

BUILDING

Maint

CONNECTIONS TO
PIPES (TYP)

NATURAL GAS PIPING

2 - MAGNESIUM
ANODES ON 5'
SPACING

BOILER HOUSE

BUILDING

BUILDING

ELECTRICAL SUBSTATION

N2 Generator

COOLING TOWER

Proxair
TANK

Fuel
oil

CATHODIC PROTECTION SYMBOL LEGEND

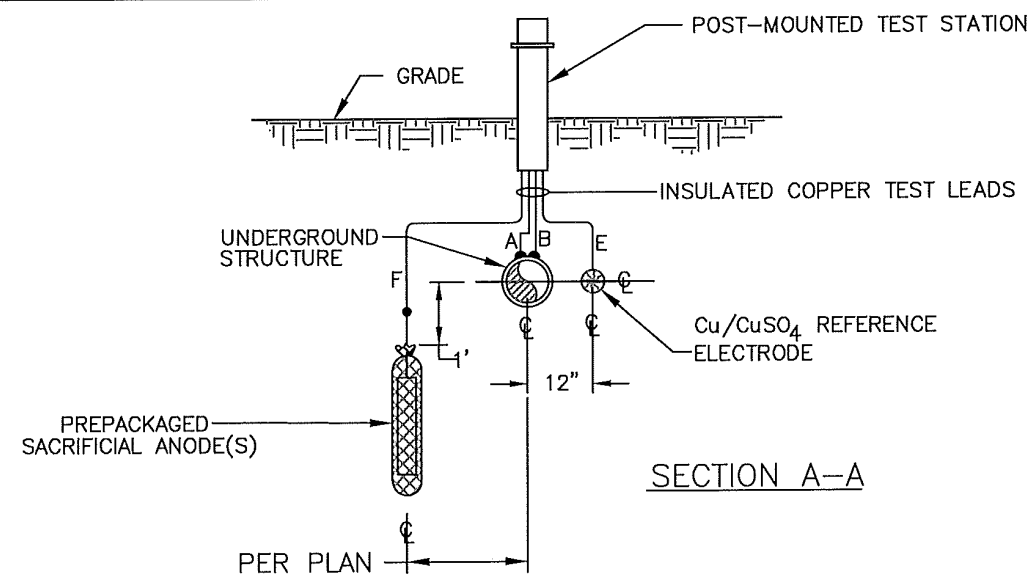
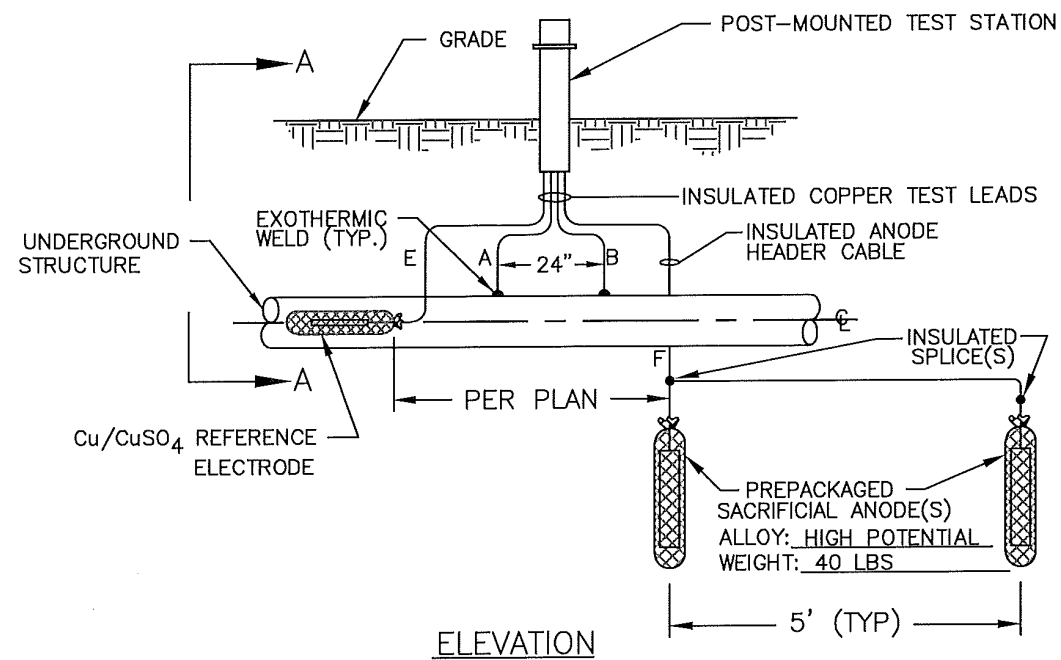
- = MAGNESIUM ANODE - VERTICAL
- = COPPER/COPPER SULFATE REFERENCE CELL
- = TEST STATION
- = EXOTHERMIC WELD

| | | | | | | | | | | |
|-----|------|----|----------|---|---|--|--|---|-------------|-----------|
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| | | | | | | | | | CHECKED BY | SWC |
| | | | | | | | | | DRAWN BY | LWH |
| | | | | | | | | | DATE | 9-20-16 |
| | | | | | | | | | SCALE | NONE |
| No. | DATE | BY | REVISION | <p>THIS DOCUMENT AND ITS CONTENTS ARE THE PROPERTY OF CORRPRO COMPANIES, INC. ("CORRPRO"). INTENDED ONLY FOR THE USE OF RECIPIENT (THE "RECIPIENT"). RECIPIENT AGREES NOT TO COPY OR REPRODUCE IT OR USE IT FOR ANY UNAPPROVED PURPOSE, WITHOUT CORRPRO'S PRIOR WRITTEN CONSENT. RECIPIENT SHALL RETURN THIS DOCUMENT UPON CORRPRO'S REQUEST OR UPON COMPLETION OF THE WORK DESCRIBED HEREIN. THIS DESIGN IS NOT APPLICABLE FOR USE AS STANDARD CORROSION CONTROL, DUE TO VARIABLE CONDITIONS AT OTHER SITES.</p> | CLIENT: FLINT HILLS RESOURCES CHEMICAL INTERMEDIATES, LLC 501 BRUNNER STREET PERU, IL 61354 | OWNER: FLINT HILLS RESOURCES CHEMICAL INTERMEDIATES, LLC 501 BRUNNER STREET PERU, IL 61354 | CONTENTS: CATHODIC PROTECTION SYSTEM NATURAL GAS PIPELINES SITE LAYOUTS | LOCATION: FLINT HILLS RESOURCES CHEMICAL INTERMEDIATES, LLC 501 BRUNNER STREET PERU, IL 61354 | SHEET | 2 OF 4 |
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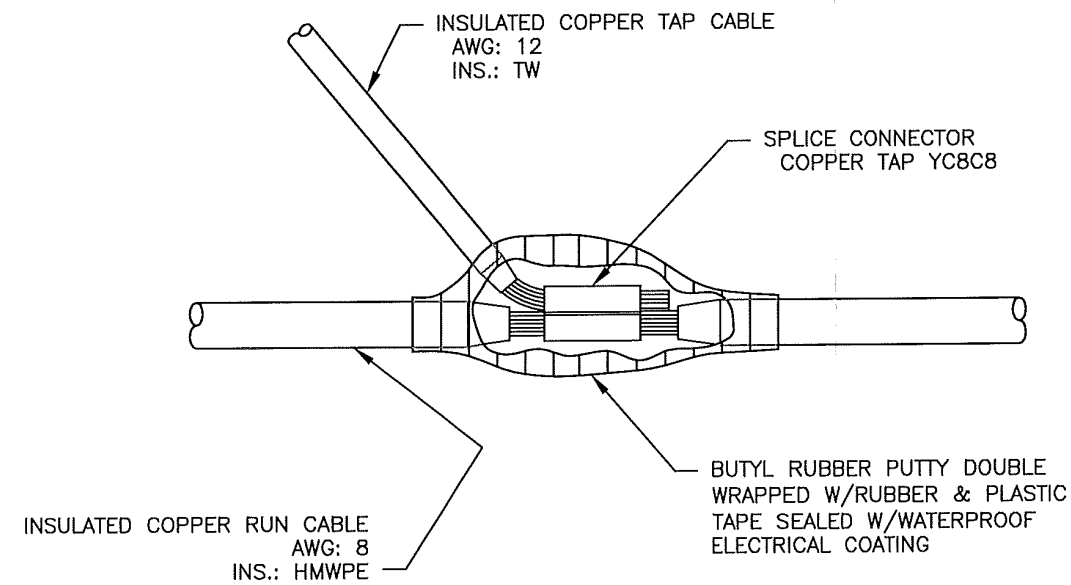
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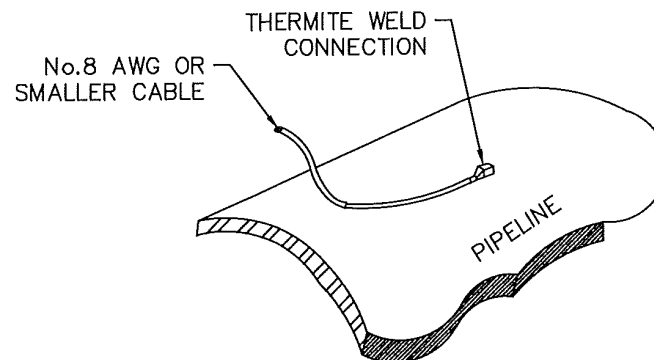
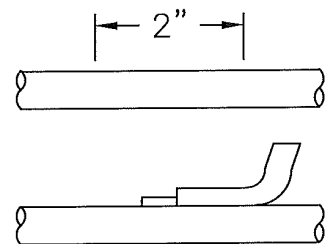
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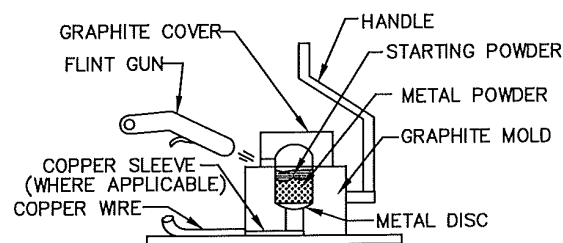
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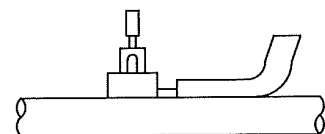
- STEPS FOR PREPARING PIPE**
1. REMOVE A 2" SQUARE SECTION OF COATING. FILE SURFACE TO BRIGHT METAL AND DRY.
 2. HIGHT PRESSURE RELIEF PIPE MUST BE TESTED FOR WALL LAMINATIONS PRIOR TO WELDING.
 3. WRAP TEST LEAD AROUND PIPE TO REDUCE STRAIN ON THERMITE WELD. NEVER WRAP CASING WIRE AROUND PIPELINE.
 4. STRIP INSULATION FROM WIRE, SLIP ON COPPER COPPER SLEEVE (#10 WIRE AND SMALLER), AND CRIMP. PLACE WIRE AGAINST METAL SURFACE.



- STEPS FOR PREPARING WELDER**
- A. PLACE METAL DISC IN BOTTOM OF GRAPHITE MOLD.
 - B. OPEN CARTRIDGE AND DUMP CHARGE IN MOLD.
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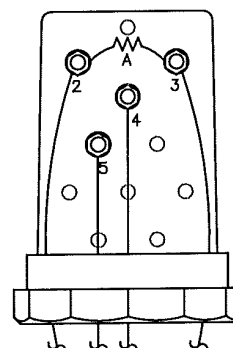
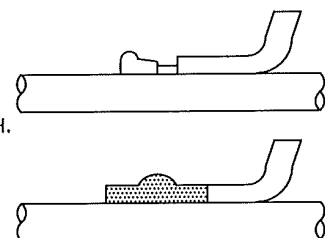


5. PLACE PREPARED WELDER OVER WIRE AND HOLD FIRMLY WHILE MAKING CONNECTION, APPLY SPARK TO SIDE OF WELDER WITH FLINT GUN.
6. REMOVE HOLD AND LET COOL.
7. AFTER WELD HAS COOLED, HIT WELD SEVERAL TIMES WITH HAMMER TO ENSURE WELD IS INTACT.
8. PROTECT WELDMENT AS REQUIRED, USING DENSO PROTAL 7125 AS SHOWN.

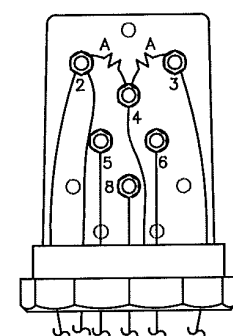


DENSO PROTAL 7125 REPAIR CARTRIDGE

1. PREPARE SURFACE USING CARBORUNDUM CLOTH OR 80 GRIT SANDPAPER.
2. WIPE CLEAN WITH AN ISOPROPYL ALCHOHOL SOAKED CLOTH.
3. MATERIAL CAN BE APPLIED BY INJECTING MATERIAL INTO A SMALL CONTAINER AND MIXING UNTIL A UNIFORM COLOR IS ACHIEVED.
4. MATERIAL CAN THEN BE BRUSH APPLIED TO SPECIFIED MIL THICKNESS (BETWEEN 25 TO 30 MILS).
5. CURE TIMES ARE DEPENDANT ON TEMPERATURE AND WILL BE EXTENDED AT COOLER TEMPERATURES.



| MULTIPLE ANODE TEST STATION | | | | |
|-----------------------------|-------------|------------|--------|-------------|
| WIRE TAG | GAUGE (AWG) | INSULATION | COLOR | CONNECTION |
| 2 | No.12 | THWN | YELLOW | PIPE |
| 3 | No.8 | HMWPE | BLACK | ANODE |
| 4 | No.14 | HMWPE | BLACK | REF. ELECT. |
| 5 | No.12 | THWN | YELLOW | PIPE |
| A | 0.01 ohm | N/A | SILVER | SHUNT |



| 2 LINE ANODE TEST STATION | | | | |
|---------------------------|-------------|------------|--------------|-------------|
| WIRE TAG | GAUGE (AWG) | INSULATION | COLOR | CONNECTION |
| 2 | No. 12 | THHN | YELLOW | EAST PIPE |
| 5 | No. 12 | THHN | YELLOW | EAST PIPE |
| 8 | No. 14 | HMWPE | BLACK | REF. ELECT. |
| 3 | No. 12 | THHN | YELLOW/BLACK | WEST PIPE |
| 6 | No. 12 | THHN | YELLOW/BLACK | WEST PIPE |
| 4 | No. 8 | HMWPE | BLACK | ANODE |
| A | 0.01 ohm | N/A | SILVER | SHUNT |

3 EXOTHERMIC WELD PROCEDURE

4 TEST STATION WIRING SCHEMATICS

| | | | | | | | |
|-----|------|----|----------|--|---|---|---|
| No. | DATE | BY | REVISION | REFERENCE DRAWINGS | CLIENT: FLINT HILLS RESOURCES CHEMICAL INTERMEDIATES, LLC 501 BRUNNER STREET PERU, IL 61354 | CONTENTS: CATHODIC PROTECTION SYSTEM NATURAL GAS PIPELINES DETAILS | DESIGNED BY: SWC CHECKED BY: SWC DRAWN BY: LWH DATE: 9-20-16 SCALE: NONE SHEET: 4 OF 4 DWG. No. B601220 |
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Page : 00005

Validated

**ILLINOIS Environmental Protection Agency
2016 Hazardous Waste Report
Form GM -- Generation and Management**

US EPA ID : ILD087154555 IL EPA ID : 0990850005

SECTION 1. WASTE DESCRIPTIONA. Waste Description: **LEAD AND CADMIUM CONTAMINATED SOIL**B. EPA Hazardous Waste Code(s) : **D006** **D008**C. Source Code : **G16** D. Form Code : **W301** Management Method : _____E. Waste Minimization Code: **X****SECTION 2. QUANTITY GENERATED:**A. UOM : **2. Cubic Yards** Density : **9.00** lb/gal .B. Quantity Generated in Current Reporting Year : **350.0****SECTION 3: QUANTITY MANAGED ON-SITE:**

Did this location manage some or all of this waste in RCRA or UIC regulated treatment, recycling, or disposal units at this location? (DO NOT include RCRA exempt processes.)

NOn-Site System1:Management Method : _____ Quantity managed on-site this year : **0.0**On-Site System2:Management Method : _____ Quantity managed on-site this year : **0.0****SECTION 4. OFF-SITE SHIPMENT**

A. Was any of this waste shipped off site this reporting year?

Y**SITE 1.**B. U.S. EPA ID No. of facility waste was shipped to : **ILD000666206**C. Management method shipped to : **H110**D. Total quantity shipped in this reporting year : **350.0****SITE 2.**

B. U.S. EPA ID No. of facility waste was shipped to : _____

C. Management method shipped to : _____

D. Total quantity shipped in this reporting year : **0.0****SITE 3.**

B. U.S. EPA ID No. of facility waste was shipped to : _____

C. Management method shipped to : _____

D. Total quantity shipped in this reporting year : **0.0****SITE 4.**

B. U.S. EPA ID No. of facility waste was shipped to : _____

C. Management method shipped to : _____

D. Total quantity shipped in this reporting year : **0.0****SITE 5.**

B. U.S. EPA ID No. of facility waste was shipped to : _____

C. Management method shipped to : _____

D. Total quantity shipped in this reporting year : **0.0**COMMENTS : **N**



Thursday, October 27, 2016

Adam Chapman
Flint Hills Resources
501 Brunner Street
Peru, IL 61354
TEL: (815) 224-5211
FAX: NA

RE: CAT Project

PAS WO: 16J0494

Prairie Analytical Systems, Inc. received 2 sample(s) on 10/24/2016 for the analyses presented in the following report.

All applicable quality control procedures met method specific acceptance criteria unless otherwise noted.

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If you have any questions, please feel free to contact me at (217) 753-1148.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Christina E. Pierce".

Christina E. Pierce
Project Manager

Certifications: NELAP/NELAC - IL #100323

| | | | | | | |
|-------------------------------|---|-----------------------------|---|----------------|---|--------------------|
| 1210 Capital Airport Drive | * | Springfield, IL 62707 | * | 1.217.753.1148 | * | 1.217.753.1152 Fax |
| 9114 Virginia Road Suite #112 | * | Lake in the Hills, IL 60156 | * | 1.847.651.2604 | * | 1.847.458.0538 Fax |

LABORATORY RESULTS

Client: Flint Hills Resources
Project: CAT Project
Client Sample ID: CHIPS-01
Collection Date: 10/21/16 14:00

Lab Order: 16J0494
Lab ID: 16J0494-01
Matrix: Solid

| Analyses | Result | Limit | Qual | Units | DF | Date Prepared | Date Analyzed | Method | Analyst |
|------------------------------|--------|----------|------|-------|----|----------------|----------------|---------|---------|
| TCLP Metals by ICP-MS | | | | | | | | | |
| *Mercury | U | 0.000600 | | mg/L | 3 | 10/26/16 12:45 | 10/26/16 17:55 | SW6020A | CCD |
| *Selenium | U | 0.0150 | | mg/L | 3 | 10/26/16 12:45 | 10/26/16 17:55 | SW6020A | CCD |
| *Silver | U | 0.0150 | | mg/L | 3 | 10/26/16 12:45 | 10/26/16 17:55 | SW6020A | CCD |
| TCLP Metals by ICP | | | | | | | | | |
| *Arsenic | U | 0.0100 | | mg/L | 1 | 10/26/16 12:41 | 10/26/16 18:45 | SW6010B | JTC |
| *Barium | 0.214 | 0.0400 | | mg/L | 1 | 10/26/16 12:41 | 10/26/16 18:45 | SW6010B | JTC |
| *Cadmium | 0.509 | 0.00500 | | mg/L | 1 | 10/26/16 12:41 | 10/26/16 18:45 | SW6010B | JTC |
| *Chromium | U | 0.00500 | | mg/L | 1 | 10/26/16 12:41 | 10/26/16 18:45 | SW6010B | JTC |
| *Lead | 24.7 | 0.100 | | mg/L | 20 | 10/26/16 12:41 | 10/26/16 18:34 | SW6010B | JTC |

Client Sample ID: B4-01
Collection Date: 10/21/16 14:15

Lab ID: 16J0494-02
Matrix: Solid

| Analyses | Result | Limit | Qual | Units | DF | Date Prepared | Date Analyzed | Method | Analyst |
|------------------------------|--------|----------|------|-------|----|----------------|----------------|---------|---------|
| TCLP Metals by ICP-MS | | | | | | | | | |
| *Mercury | U | 0.000600 | | mg/L | 3 | 10/26/16 12:45 | 10/26/16 18:19 | SW6020A | CCD |
| *Selenium | U | 0.0150 | | mg/L | 3 | 10/26/16 12:45 | 10/26/16 18:19 | SW6020A | CCD |
| *Silver | U | 0.0150 | | mg/L | 3 | 10/26/16 12:45 | 10/26/16 18:19 | SW6020A | CCD |
| TCLP Metals by ICP | | | | | | | | | |
| *Arsenic | U | 0.0100 | | mg/L | 1 | 10/26/16 12:41 | 10/26/16 19:02 | SW6010B | JTC |
| *Barium | 0.189 | 0.0400 | | mg/L | 1 | 10/26/16 12:41 | 10/26/16 19:02 | SW6010B | JTC |
| *Cadmium | 0.461 | 0.00500 | | mg/L | 1 | 10/26/16 12:41 | 10/26/16 19:02 | SW6010B | JTC |
| *Chromium | U | 0.00500 | | mg/L | 1 | 10/26/16 12:41 | 10/26/16 19:02 | SW6010B | JTC |
| *Lead | 45.9 | 0.250 | | mg/L | 50 | 10/26/16 12:41 | 10/27/16 11:33 | SW6010B | JTC |

LABORATORY RESULTS

Client: Flint Hills Resources
Project: CAT Project

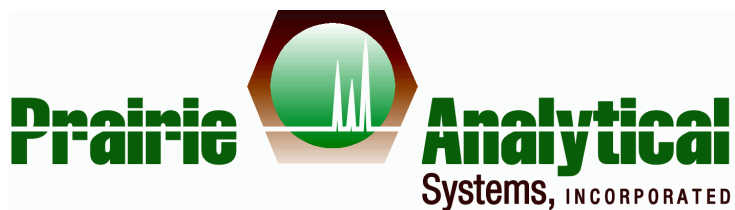
Lab Order: 16J0494

Notes and Definitions

- S Spike recovery outside acceptance limits.
- * NELAC certified compound.
- U Analyte not detected (i.e. less than RL or MDL).

Central IL - 1210 Capital Airport Drive - Springfield, IL 62707-8490 - Phone (217) 753-1148 - Facsimile (217) 753-1152
Chicago IL Office - 9114 Virginia Rd., Ste 112 - Lake in the Hills, IL 60156 - Phone (847) 651-2604 - Facsimile (847) 458-9680
Central/Southern IL Office - Phone (217) 414-7762 - Facsimile (217) 223-7922

[illegible]



Monday, November 28, 2016

Adam Chapman
Flint Hills Resources
501 Brunner Street
Peru, IL 61354
TEL: (815) 224-5211
FAX: NA

RE: Soils

PAS WO: 16K0447

Prairie Analytical Systems, Inc. received 8 sample(s) on 11/17/2016 for the analyses presented in the following report.

All applicable quality control procedures met method specific acceptance criteria unless otherwise noted.

This report shall not be reproduced, except in full, without the prior written consent of Prairie Analytical Systems, Inc.

If you have any questions, please feel free to contact me at (224) 253-1348.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Christina E. Pierce".

Christina E. Pierce
Project Manager

Certifications: NELAP/NELAC - IL #100323

| | | | | | | |
|-------------------------------|---|-----------------------------|---|----------------|---|--------------------|
| 1210 Capital Airport Drive | * | Springfield, IL 62707 | * | 1.217.753.1148 | * | 1.217.753.1152 Fax |
| 9114 Virginia Road Suite #112 | * | Lake in the Hills, IL 60156 | * | 1.847.651.2604 | * | 1.847.458.0538 Fax |

LABORATORY RESULTS

Client: Flint Hills Resources
Project: Soils
Client Sample ID: CHRT27217
Collection Date: 11/17/16 11:15

Lab Order: 16K0447
Lab ID: 16K0447-01
Matrix: Solid

| Analyses | Result | Limit | Qual | Units | DF | Date Prepared | Date Analyzed | Method | Analyst |
|------------------------------|----------------|----------|------|-------|----|----------------|----------------|---------|---------|
| TCLP Metals by ICP-MS | | | | | | | | | |
| *Mercury | U | 0.000600 | | mg/L | 3 | 11/22/16 13:30 | 11/23/16 16:39 | SW6020A | CCD |
| *Selenium | U | 0.0150 | | mg/L | 3 | 11/22/16 13:30 | 11/23/16 16:39 | SW6020A | CCD |
| *Silver | U | 0.0150 | | mg/L | 3 | 11/22/16 13:30 | 11/23/16 16:39 | SW6020A | CCD |
| TCLP Metals by ICP | | | | | | | | | |
| *Arsenic | U | 0.0100 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 21:13 | SW6010B | JTC |
| *Barium | U | 0.0400 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 21:13 | SW6010B | JTC |
| *Cadmium | 0.0467 | 0.00500 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 21:13 | SW6010B | JTC |
| *Chromium | U | 0.0100 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 21:13 | SW6010B | JTC |
| *Lead | 0.00681 | 0.00500 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 21:13 | SW6010B | JTC |

Client Sample ID: CHRT26654
Collection Date: 11/17/16 11:30

Lab ID: 16K0447-02
Matrix: Solid

| Analyses | Result | Limit | Qual | Units | DF | Date Prepared | Date Analyzed | Method | Analyst |
|------------------------------|--------------|----------|------|-------|----|----------------|----------------|---------|---------|
| TCLP Metals by ICP-MS | | | | | | | | | |
| *Mercury | U | 0.000600 | | mg/L | 3 | 11/22/16 13:30 | 11/23/16 17:03 | SW6020A | CCD |
| *Selenium | U | 0.0150 | | mg/L | 3 | 11/22/16 13:30 | 11/23/16 17:03 | SW6020A | CCD |
| *Silver | U | 0.0150 | | mg/L | 3 | 11/22/16 13:30 | 11/23/16 17:03 | SW6020A | CCD |
| TCLP Metals by ICP | | | | | | | | | |
| *Arsenic | U | 0.0100 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 21:30 | SW6010B | JTC |
| *Barium | 0.102 | 0.0400 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 21:30 | SW6010B | JTC |
| *Cadmium | 0.129 | 0.00500 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 21:30 | SW6010B | JTC |
| *Chromium | U | 0.0100 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 21:30 | SW6010B | JTC |
| *Lead | 0.621 | 0.00500 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 21:30 | SW6010B | JTC |

Client Sample ID: 1113
Collection Date: 11/17/16 10:50

Lab ID: 16K0447-03
Matrix: Solid

| Analyses | Result | Limit | Qual | Units | DF | Date Prepared | Date Analyzed | Method | Analyst |
|------------------------------|---------------|----------|------|-------|----|----------------|----------------|---------|---------|
| TCLP Metals by ICP-MS | | | | | | | | | |
| *Mercury | U | 0.000600 | | mg/L | 3 | 11/22/16 13:30 | 11/23/16 17:11 | SW6020A | CCD |
| *Selenium | U | 0.0150 | | mg/L | 3 | 11/22/16 13:30 | 11/23/16 17:11 | SW6020A | CCD |
| *Silver | U | 0.0150 | | mg/L | 3 | 11/22/16 13:30 | 11/23/16 17:11 | SW6020A | CCD |
| TCLP Metals by ICP | | | | | | | | | |
| *Arsenic | U | 0.0100 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 21:36 | SW6010B | JTC |
| *Barium | 0.581 | 0.0400 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 21:36 | SW6010B | JTC |
| *Cadmium | 0.153 | 0.00500 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 21:36 | SW6010B | JTC |
| *Chromium | 0.0340 | 0.0100 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 21:36 | SW6010B | JTC |
| *Lead | 2.16 | 0.0500 | | mg/L | 10 | 11/22/16 13:30 | 11/23/16 16:24 | SW6010B | JTC |

LABORATORY RESULTS

Client: Flint Hills Resources
Project: Soils
Client Sample ID: 1098
Collection Date: 11/17/16 10:00

Lab Order: 16K0447
Lab ID: 16K0447-04
Matrix: Solid

| Analyses | Result | Limit | Qual | Units | DF | Date Prepared | Date Analyzed | Method | Analyst |
|------------------------------|--------|----------|------|-------|----|----------------|----------------|---------|---------|
| TCLP Metals by ICP-MS | | | | | | | | | |
| *Mercury | U | 0.000600 | | mg/L | 3 | 11/22/16 13:30 | 11/23/16 17:51 | SW6020A | CCD |
| *Selenium | U | 0.0150 | | mg/L | 3 | 11/22/16 13:30 | 11/23/16 17:51 | SW6020A | CCD |
| *Silver | U | 0.0150 | | mg/L | 3 | 11/22/16 13:30 | 11/23/16 17:51 | SW6020A | CCD |
| TCLP Metals by ICP | | | | | | | | | |
| *Arsenic | U | 0.0100 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 21:42 | SW6010B | JTC |
| *Barium | 0.590 | 0.0400 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 21:42 | SW6010B | JTC |
| *Cadmium | 0.166 | 0.00500 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 21:42 | SW6010B | JTC |
| *Chromium | 0.0108 | 0.0100 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 21:42 | SW6010B | JTC |
| *Lead | 1.31 | 0.00500 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 21:42 | SW6010B | JTC |

Client Sample ID: 1045
Collection Date: 11/17/16 10:40

Lab ID: 16K0447-05
Matrix: Solid

| Analyses | Result | Limit | Qual | Units | DF | Date Prepared | Date Analyzed | Method | Analyst |
|------------------------------|--------|----------|------|-------|----|----------------|----------------|---------|---------|
| TCLP Metals by ICP-MS | | | | | | | | | |
| *Mercury | U | 0.000600 | | mg/L | 3 | 11/22/16 13:30 | 11/23/16 17:59 | SW6020A | CCD |
| *Selenium | U | 0.0150 | | mg/L | 3 | 11/22/16 13:30 | 11/23/16 17:59 | SW6020A | CCD |
| *Silver | U | 0.0150 | | mg/L | 3 | 11/22/16 13:30 | 11/23/16 17:59 | SW6020A | CCD |
| TCLP Metals by ICP | | | | | | | | | |
| *Arsenic | U | 0.0100 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 21:47 | SW6010B | JTC |
| *Barium | 0.930 | 0.0400 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 21:47 | SW6010B | JTC |
| *Cadmium | 0.552 | 0.00500 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 21:47 | SW6010B | JTC |
| *Chromium | U | 0.0100 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 21:47 | SW6010B | JTC |
| *Lead | 26.1 | 0.100 | | mg/L | 20 | 11/22/16 13:30 | 11/23/16 16:30 | SW6010B | JTC |

Client Sample ID: 1099
Collection Date: 11/17/16 10:20

Lab ID: 16K0447-06
Matrix: Solid

| Analyses | Result | Limit | Qual | Units | DF | Date Prepared | Date Analyzed | Method | Analyst |
|------------------------------|--------|----------|------|-------|----|----------------|----------------|---------|---------|
| TCLP Metals by ICP-MS | | | | | | | | | |
| *Mercury | U | 0.000600 | | mg/L | 3 | 11/22/16 13:30 | 11/23/16 18:07 | SW6020A | CCD |
| *Selenium | U | 0.0150 | | mg/L | 3 | 11/22/16 13:30 | 11/23/16 18:07 | SW6020A | CCD |
| *Silver | U | 0.0150 | | mg/L | 3 | 11/22/16 13:30 | 11/23/16 18:07 | SW6020A | CCD |
| TCLP Metals by ICP | | | | | | | | | |
| *Arsenic | U | 0.0100 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 22:10 | SW6010B | JTC |
| *Barium | 0.558 | 0.0400 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 22:10 | SW6010B | JTC |
| *Cadmium | 0.187 | 0.00500 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 22:10 | SW6010B | JTC |
| *Chromium | 0.0285 | 0.0100 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 22:10 | SW6010B | JTC |
| *Lead | 1.06 | 0.00500 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 22:10 | SW6010B | JTC |

LABORATORY RESULTS

Client: Flint Hills Resources
Project: Soils
Client Sample ID: 1112
Collection Date: 11/17/16 10:10

Lab Order: 16K0447
Lab ID: 16K0447-07
Matrix: Solid

| Analyses | Result | Limit | Qual | Units | DF | Date Prepared | Date Analyzed | Method | Analyst |
|------------------------------|---------------|----------|------|-------|----|----------------|----------------|---------|---------|
| TCLP Metals by ICP-MS | | | | | | | | | |
| *Mercury | U | 0.000600 | | mg/L | 3 | 11/22/16 13:30 | 11/23/16 18:15 | SW6020A | CCD |
| *Selenium | U | 0.0150 | | mg/L | 3 | 11/22/16 13:30 | 11/23/16 18:15 | SW6020A | CCD |
| *Silver | U | 0.0150 | | mg/L | 3 | 11/22/16 13:30 | 11/23/16 18:15 | SW6020A | CCD |
| TCLP Metals by ICP | | | | | | | | | |
| *Arsenic | U | 0.0100 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 22:16 | SW6010B | JTC |
| *Barium | 0.350 | 0.0400 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 22:16 | SW6010B | JTC |
| *Cadmium | 0.138 | 0.00500 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 22:16 | SW6010B | JTC |
| *Chromium | 0.0329 | 0.0100 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 22:16 | SW6010B | JTC |
| *Lead | 2.40 | 0.0500 | | mg/L | 10 | 11/22/16 13:30 | 11/23/16 16:36 | SW6010B | JTC |

Client Sample ID: 1110
Collection Date: 11/17/16 10:30

Lab ID: 16K0447-08
Matrix: Solid

| Analyses | Result | Limit | Qual | Units | DF | Date Prepared | Date Analyzed | Method | Analyst |
|------------------------------|---------------|----------|------|-------|----|----------------|----------------|---------|---------|
| TCLP Metals by ICP-MS | | | | | | | | | |
| *Mercury | U | 0.000600 | | mg/L | 3 | 11/22/16 13:30 | 11/23/16 18:23 | SW6020A | CCD |
| *Selenium | U | 0.0150 | | mg/L | 3 | 11/22/16 13:30 | 11/23/16 18:23 | SW6020A | CCD |
| *Silver | U | 0.0150 | | mg/L | 3 | 11/22/16 13:30 | 11/23/16 18:23 | SW6020A | CCD |
| TCLP Metals by ICP | | | | | | | | | |
| *Arsenic | U | 0.0100 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 22:21 | SW6010B | JTC |
| *Barium | 0.400 | 0.0400 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 22:21 | SW6010B | JTC |
| *Cadmium | 0.117 | 0.00500 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 22:21 | SW6010B | JTC |
| *Chromium | 0.0117 | 0.0100 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 22:21 | SW6010B | JTC |
| *Lead | 0.789 | 0.00500 | | mg/L | 1 | 11/22/16 13:30 | 11/22/16 22:21 | SW6010B | JTC |

LABORATORY RESULTS

Client: Flint Hills Resources
Project: Soils

Lab Order: 16K0447

Notes and Definitions

- S Spike recovery outside acceptance limits.
- * NELAC certified compound.
- U Analyte not detected (i.e. less than RL or MDL).

Chain of Custody Record

Central IL - 1210 Capital Airport Drive - Springfield, IL 62707-8490 - Phone (217) 753-1148 - Facsimile (217) 753-1152
 Chicago IL Office - 9114 Virginia Rd., Ste 112 - Lake in the Hills, IL 60156 - Phone (847) 651-2604 - Facsimile (847) 458-9680
 Central/Southern IL Office - Phone (217) 414-7762 - Facsimile (217) 223-7922

| Client | | Flint Hills Resources Peru, LLC | | | | | | | | | | Analysis and/or Method Requested | | | | | | | | Reporting | |
|-----------------------|----------|---------------------------------|-------------|---------------------|-------------------|---|------|-------------------------|--|--|--|---|--|---------------------|--|------------------|--|--|--|---|--|
| Address | | 501 Brunner St. | | | | | | | | | | | | | | | | | | | |
| City, State, Zip Code | | Peru, IL 601354 | | | | | | | | | | RURA 8 METALS TCLP | | | | | | | | TACO | |
| Phone / Facsimile | | 815-224-5211 | | | | | | | | | | | | | | | | | | <input type="checkbox"/> Resid <input type="checkbox"/> Ind/Comm | |
| Project Name / Number | | SOILS | | | | | | | | | | | | | | | | | | CALM | |
| Project Location | | | | | | | | | | | | | | | | | | | | <input type="checkbox"/> A <input type="checkbox"/> D <input type="checkbox"/> B <input type="checkbox"/> E <input type="checkbox"/> C <input type="checkbox"/> F | |
| P.O. # or Invoice To | | | | | | | | | | | | | | | | | | | | RISC | |
| Contact Person | | ADAM CHAPMAN | | | | | | | | | | | | | | | | | | <input type="checkbox"/> Resid <input type="checkbox"/> Indust | |
| Sample Description | Sampling | | Matrix Code | Preserv Code | No. of Containers | Sample Type | | | | | | | | | | Sampler Comments | | | | | |
| | Date | Time | | | | Comp | Grab | | | | | | | | | | | | | | |
| CHRT27217 | 11/17/16 | 11:15 | S | O | 1 | X | | | | | | | | | | | | | | | |
| CHRT20064 | | 11:30 | | | 1 | X | | | | | | | | | | | | | | | |
| 1113 | | 10:50 | | | 1 | X | | | | | | | | | | | | | | | |
| 1098 | | 10:00 | | | 1 | | | | | | | | | | | | | | | | |
| 1045 | | 10:40 | | | 1 | | | | | | | | | | | | | | | | |
| 1099 | | 10:20 | | | 1 | | | | | | | | | | | | | | | | |
| 1112 | | 10:10 | | | 1 | | | | | | | | | | | | | | | | |
| 1100 | | 10:30 | | | 1 | | | | | | | | | | | | | | | | |
| Matrix Code | | A - Aqueous | | DW - Drinking Water | | GW - Ground Water | | NA - Non-Aqueous Liquid | | S - Solid | | O - Oil | | X - Other (Specify) | | | | | | | |
| Preserv Code | | 0 - None | | 1 - HCl | | 2 - H2SO4 | | 3 - HNO3 | | 4 - NaOH | | 5 - 5035 Kit | | X - Other (Specify) | | | | | | | |
| Relinquished By | | Date | | Time | | Received By | | Date | | Time | | Method of Shipment | | | | | | | | | |
| Adam Chap | | 11/17/16 | | 12:03 | | Dw M. Daniel | | 11/17/16 | | 12:05 | | Hand | | | | | | | | | |
| | | | | | | Gene Koffler | | 11/17/16 | | 1417 | | HAND | | | | | | | | | |
| Instructions: | | | | | | Turnaround Time: Standard <input checked="" type="checkbox"/> Rush <input type="checkbox"/> | | | | QC Level | | On wet ice? | | Temperature (°C) | | | | | | | |
| | | | | | | Date Required: | | | | 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> | | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | | 18.8 | | | | | | | |

6022

| | | | | | | |
|--|--|---|---|--|---|-----------------|
| UNIFORM HAZARDOUS WASTE MANIFEST | | 1. Generator ID Number ILD087154555 | 2. Page 1 of 1 | 3. Emergency Response Phone (800) 483-3718 | 4. Manifest Tracking Number 011033282 FLE | |
| 5. Generator's Name and Mailing Address Flint Hills Resources 501 Brunner Street Peru, IL 61354 Generator's Phone: (815) 224-5451 | | | Generator's Site Address (if different than mailing address) SAME | | | |
| 6. Transporter 1 Company Name Clean Harbors Environmental Services, Inc. | | | U.S. EPA ID Number MAD039322250 | | | |
| 7. Transporter 2 Company Name NEIER | | | U.S. EPA ID Number IND984868406 | | | |
| 8. Designated Facility Name and Site Address Spring Grove Resource Recovery Inc. 4879 Spring Grove Avenue Cincinnati, OH 45232 Facility's Phone: (513) 681-5738 | | | U.S. EPA ID Number OH0000816629 | | | |
| 9a. HM | 9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)) | 10. Containers No. Type | | 11. Total Quantity | 12. Unit Wt./Vol. | 13. Waste Codes |
| | 1. NON HAZARDOUS, NON D.O.T. REGULATED, (NON-HAZARDOUS SOIL) | 010 DM | | 550 | g | |
| | 2. NON-HAZARDOUS, NON D.O.T. REGULATED, (NON-HAZARDOUS SOIL) | 001 DF | | 95 | g | |
| | 3. | | | | | |
| | 4. | | | | | |
| 14. Special Handling Instructions and Additional Information 1. CH1452699 10X55 2. CH1452699 1X95 | | | | | | |
| 15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true. | | | | | | |
| Generator's/Offor's Printed/Typed Name Adam Chapman | | Signature <i>Adam Chapman</i> | | Month Day Year 9 14 17 | | |
| 16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. | | Port of entry/exit: Date leaving U.S.: | | | | |
| 17. Transporter Acknowledgment of Receipt of Materials | | | | | | |
| Transporter 1 Printed/Typed Name Brian Reiter | | Signature <i>Brian Reiter</i> | | Month Day Year 9 14 17 | | |
| Transporter 2 Printed/Typed Name George Scott | | Signature <i>George Scott</i> | | Month Day Year 9 22 17 | | |
| 18. Discrepancy | | | | | | |
| 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection | | | | | | |
| Manifest Reference Number: | | | | | | |
| 18b. Alternate Facility (or Generator) U.S. EPA ID Number | | | | | | |
| Facility's Phone: | | | | | | |
| 18c. Signature of Alternate Facility (or Generator) Month Day Year | | | | | | |
| 19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems) | | | | | | |
| 1. H141 | 2. H141 | 3. | 4. | | | |
| 20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a | | | | | | |
| Printed/Typed Name Lakesha Mason | | Signature <i>Lakesha Mason</i> | | Month Day Year 9 22 17 | | |

NO. 25-A W99

2521. 10. 2. 1. 1. 1.

511 24 1050

2011 11 15 15:00

816-554-1014
P.O. Box 1014
St. Louis, MO 63101
The Hill Resources

085648 AM

U.S. DEPARTMENT OF JUSTICE

- 200150001 100

RECEIVED
JAN 10 1967

NOT RECORDED IN 2010
(NON-RECORDED 2010)

985001-2

Source: *Journal of the American Statistical Association*, 1997, 92, 103-114.

FHRPRU002970

A134003CIL

82214

FORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number

ILD087154555

2. Page 1 of

1

3. Emergency Response Phone

(800) 483-3718

4. Manifest Tracking Number

009555739

FLE

5. Generator's Name and Mailing Address

Flint Hills Resources
501 Brunner Street
Peru, IL 61354

Generator's Phone: (815) 274-6451

Generator's Site Address (if different than mailing address)

SAME

6. Transporter 1 Company Name

Clean Harbors Environmental Service, Inc.

U.S. EPA ID Number

MAD039322250

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address

EQ - Illinois
16435 South Center Avenue
Harvey, IL 60426

U.S. EPA ID Number

ILD000666206

Facility's Phone:

(708) 598-7000

9a.

HM

9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))

10. Containers

No.

Type

11. Total Quantity

12. Unit Wt./Vol.

13. Waste Codes

x

1. HQ, NA3077, HAZARDOUS WASTE, SOLID, N.O.S., (LEAD, CADMIUM), 9, PG III (D006, D009)

001

CM

25

Y

D006

D009

14. Special Handling Instructions and Additional Information

1. A134003CIL

ERG#171

PO# W160767448

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offor's Printed/Typed Name

Signature

Month Day Year

ADAM CHAPMAN

Adam Chapman

11 22 16

16. International Shipments

☐ Import to U.S.

☐ Export from U.S.

Port of entry/exit:

Transporter signature (for exports only):

Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name

Signature

Month Day Year

Brad Honiberg

Brad Honiberg

11 22 16

Transporter 2 Printed/Typed Name

Signature

Month Day Year

18. Discrepancy

18a. Discrepancy Indication Space

☐ Quantity

☐ Type

☐ Residue

☐ Partial Rejection

☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator)

Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.

H110

2.

3.

4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name

Signature

Month Day Year

Mark C. Linder

Mark C. Linder

11 22 16

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

11003368971-010

50 PPW 11/2/2016

Form Approved. OMB No. 2050-0039

| | | | | | | | |
|---|--|--|--|---|--|-------------------|-----------------|
| UNIFORM HAZARDOUS WASTE MANIFEST | | 1. Generator ID Number ILD087154555 | 2. Page 1 of 1 | 3. Emergency Response Phone (800) 483-3718 | 4. Manifest Tracking Number 009555740 FLE | | |
| 5. Generator's Name and Mailing Address Flint Hills Resources 501 Brunner Street Peru, IL 61354 Generator's Phone: (815) 224-6451 | | | Generator's Site Address (if different than mailing address) SAME | | | | |
| 6. Transporter 1 Company Name Clean Harbors Environmental Service, Inc. | | | U.S. EPA ID Number MAD039322250 | | | | |
| 7. Transporter 2 Company Name | | | U.S. EPA ID Number | | | | |
| 8. Designated Facility Name and Site Address 16435 South Center Avenue Harvey, IL 60426 Facility's Phone: (708) 558-7810 | | | U.S. EPA ID Number IL0000000400 | | | | |
| 9a. HM | 9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)) | | 10. Containers | | 11. Total Quantity | 12. Unit Wt./Vol. | 13. Waste Codes |
| | | | No. | Type | | | |
| | 1. RO, NA3077, HAZARDOUS WASTE, SOLID, N.O.S., (LEAD, CADMIUM), 9, PG III (D006, D008) | | 001 | CM | 25 | Y | D006, D008 |
| | 2. | | | | | | |
| | 3. | | | | | | |
| 4. | | | | | | | |
| 14. Special Handling Instructions and Additional Information 1. A124003EIL BPG#171 POF W150767448 | | | | | | | |
| 15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true. | | | | | | | |
| Generator's/Officer's Printed/Typed Name ADAM CHAPMAN | | | Signature Adam Chapman | | Month 11 | Day 21 | Year 16 |
| 16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Transporter signature (for exports only): _____ Date leaving U.S.: _____ | | | | | | | |
| 17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name Brad Homberg Signature Month 11 Day 21 Year 16 Transporter 2 Printed/Typed Name Signature Month Day Year | | | | | | | |
| 18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number: _____ 18b. Alternate Facility (or Generator) U.S. EPA ID Number Facility's Phone: _____ 18c. Signature of Alternate Facility (or Generator) Month Day Year | | | | | | | |
| 19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems) 1. A110 2. 3. 4. | | | | | | | |
| 20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a Printed/Typed Name Matt L. Anderson Signature Month 11 Day 21 Year 16 | | | | | | | |